Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. **(Currently amended)** A variable capacitor circuit to control the capacitance of a variable capacitor in a linear mode through a tuning voltage and to achieve a high Q-factor at the same time; comprising:

~~means for~~ a set of individual small capacitors;

a set of capacitor switching stages, each stage comprising:

~~means for~~ a ~~set of~~ switching devices ~~to continually switch on said capacitors in parallel~~allowing a steady ramp-up/ramp-down phase between the points of being fully switched on and fully switched off, and where said switching device is connected in series with~~,~~ one ~~for each~~ of said small capacitors;

~~means~~ a switch control circuit to ~~linearly~~ control the switching ~~function~~ operation ~~for each~~ of said ~~set of continuous~~ switching devices in a steady ramp-up/ramp-down manner~~;~~ ~~means to~~ by generateing a ~~set of~~ controlling signal~~s~~, directly depending on ~~the~~ a tuning voltage input, one for each of ~~the~~ said capacitor switching stages;

~~means~~ a threshold circuit to generate a set of threshold values, one for each of ~~the~~ said capacitor switching stages; and

~~means~~ a circuit to provide ~~a~~ said tuning voltage, dedicated for the voltage controlled capacitance change.

2. **(Original)** The circuit of claim **0** wherein said capacitors are discrete capacitor components.

3. **(Original)** The circuit of claim **0** wherein said capacitors are manufactured on planar carrier.

4. **(Currently amended)** The circuit of claim **0** wherein said capacitors are integrated on a semiconductor substrate, but on a separate substrate than said ~~switching devices~~capacitor switching stages.

5. **(Currently amended)** The circuit of claim **0** wherein said capacitors are integrated on a semiconductor substrate and on the same substrate as said ~~switching devices and amplifiers~~capacitor switching stages.

6. **(Original)** The circuit of claim **0** wherein said capacitors are manufactured as a Metal-Oxide structure.

7. **(Original)** The circuit of claim **0** wherein said capacitors are manufactured as a junction capacitor.

8. **(Original)** The circuit of claim **0** wherein said switching device is a transistor.

9. **(Currently amended)** The circuit of claim **8** wherein said switching device is a P-~~MOS~~channel or N-~~MOS~~channel junction FET.

10. **(Currently amended)** The circuit of claim **8** wherein said switching device is a ~~C~~PMOS or NMOS FET.

11. **(Currently amended)** The circuit of claim **0** wherein said ~~means to linearly control the switching function for each of a set of continuous switching devices~~ switch control circuits are connected directly to said ~~means to generate a set of controlling signals, directly depending on the tuning voltage input~~ tuning voltage circuits.

12. **(Currently amended)** The circuit of claim **0** wherein said ~~means to linearly control the switching function for each of said continuous switching devices~~ switch control circuit uses ~~a circuit like~~ a voltage follower circuit ~~to connect to~~, which receives its input from said ~~means to generate a set of controlling signals, directly depending on the tuning voltage input~~ tuning voltage circuit.

13. **(Currently amended)** The circuit of claim **0** wherein said ~~means to generate a set of controlling signals, directly depending on the tuning voltage input~~ set of tuning voltage circuits, one for each of said capacitor switching stages, is implemented as a chain of resistors.

14. **(Currently amended)** A variable capacitor circuit to control the capacitance of a variable capacitor in a linear mode through a tuning voltage and to achieve a high Q-factor at the same time; comprising:

~~means for~~ a set of individual small capacitors;

a set of capacitor switching stages; each stage comprising:

~~means for~~ a ~~set of~~ switching devices to ~~continually switch on said capacitors in parallel~~ allowing a steady ramp-up/ramp-down phase between the points of being fully switched on and fully switched off, and where said switching devices are connected in series with, one ~~for each~~ of said small capacitors;

~~means~~ a switch control circuit to ~~linearly~~ control the switching ~~function~~ operation ~~for each~~ of said ~~continuous~~ switching devices in a steady ramp-up/ramp-down manner by generating a controlling signal, directly depending on a tuning voltage input; said switch control circuit comprising:~~;~~

~~means for~~ an ~~set of~~ amplifier ~~stages~~ to produce ~~said~~ a linear controls signal for said steady ramp-up/ramp-down switching ~~functions~~operation;

~~means~~ a set of threshold circuits to generate a set of threshold values, one for each of said amplifier stages; and

~~means~~ a circuit to provide ~~a~~ said tuning voltage, dedicated for the voltage controlled capacitance change, for all of said amplifier stages.

15. **(Original)** The circuit of claim **14** wherein said amplifier is an operational amplifier.

16. **(Cancelled)** ~~The circuit of claim 14 wherein said means to linearly control the switching function for each of said continuous switching devices is provided by the output of said operational amplifier.~~

17. **(Currently amended)** The circuit of claim **14** wherein said ~~means~~ set of threshold circuits to generate a set of threshold values, one for each of said ~~amplifier~~ capacitor switching stages, is implemented as a chain of resistors.

18. **(Currently amended)** The circuit of claim **14** wherein said ~~means~~ circuit to provide a tuning voltage, dedicated for the voltage controlled capacitance change, is a single signal connected to all ~~amplifier~~ tuning inputs of said capacitor switching stages ~~at the same time~~.

19. **(Currently amended)** A method to control the capacitance of a variable capacitor in a linear mode through a tuning voltage and to achieve a high Q-factor at the same time generate; comprising:

providing ~~means for~~ a set of individual small capacitors, ~~means for~~ a set of capacitor switching stages, comprising a switching devices to ~~continually switch~~ connect ~~on~~ said capacitors in parallel, ~~one for each of said small capacitors~~, ~~means~~ a switch control circuit to linearly control the switching ~~function~~ operation ~~for~~

~~each~~ of said ~~continuous~~ switching devices, ~~means to generate a set of controlling signals, directly depending on the tuning voltage input, one for each of the capacitor switching stages; means~~a set of threshold circuits to generate a set of threshold values, one for each of said capacitor switching stages, and ~~means~~ a circuit to provide ~~a~~ said tuning voltage, dedicated for the voltage controlled capacitance change, for all of said capacitor switching stages;

~~continually~~ switching on or off one of said ~~continuous~~ switching devices in order to ~~switch~~ connect one of said small capacitors in parallel to the ~~already switched on~~ other capacitors, that are already connected in parallel, connecting in parallel one capacitor after the other;

~~linearly~~ controlling the switching ~~function~~ operation in a steady ramp-up/ramp-down manner for each of said ~~continuous~~ switching devices, in order to partially switch on said small capacitors;

generate~~ing~~ a set of controlling signals, directly depending on the tuning voltage input, to produce ~~the~~ linear control signal~~s~~ for said ~~continually~~ steady ramp-up/ramp-down switching operation;

generating a set of threshold values, one for each of said capacitor switching stages; and

supplying ~~a~~ said tuning voltage, dedicated for the voltage controlled capacitance change, to all of said capacitor switching stages.

20. **(Cancelled)** ~~The method of claim 19 wherein continually switching on one of said small capacitors in parallel to the already switched on capacitors applies to discrete capacitor components.~~

21. **(Cancelled)** ~~The method of claim 19 wherein continually switching on one of said small capacitors in parallel to the already switched on capacitors applies to capacitors manufactured on a planar carrier.~~

22. **(Cancelled)** ~~The method of claim 19 wherein continually switching on one of said small capacitors in parallel to the already switched on capacitors applies to capacitors integrated on a semiconductor substrate.~~

23. **(Cancelled)** ~~The method of claim 19 wherein linearly controlling the switching operation applies to a transistor as said continuous switching device.~~

24. **(Cancelled)** ~~The method of claim 23 wherein linearly controlling the switching operation applies to a P-MOS or N-MOS junction FET as said continuous switching device.~~

25. **(Cancelled)** ~~The method of claim 23 wherein linearly controlling the switching operation applies to a CMOS FET as said continuous switching device.~~

26. **(Cancelled)** ~~The method of claim **19** wherein amplifying the difference of the capacitance tuning voltage and the reference voltage of each amplifier stage to produce the linear control signal for said continually switching operation is performed by **said operational amplifier**.~~

27. **(Currently amended)** The method of claim **1929** wherein generating a set of threshold values, one for each of said ~~amplifier~~ capacitor switching stages uses a chain of resistors.

28. **(Currently amended)** The method of claim 1929 wherein supplying a tuning voltage, dedicated for the voltage controlled capacitance change, to all of said ~~amplifier~~ capacitor switching stages uses a single signal, connected to all ~~amplifier~~ tuning inputs of said capacitor switching stages~~at the same time~~.

29. **(Currently amended)** A method to control the capacitance of a variable capacitor in a linear mode through a tuning voltage and to achieve a high Q-factor at the same time generate; comprising:

providing ~~means for~~ a set of individual small capacitors, ~~means for~~ a set of capacitor switching stages, comprising a switching devices to ~~continually switch on~~ connect said capacitors in parallel~~, one for each of said small capacitors~~, ~~means~~ a switch control circuit to linearly control the switching ~~function~~ operation ~~for each~~ of said ~~continuous~~ switching devices, ~~means for a set of~~ each of said switch control circuits comprising an amplifier ~~stages~~ to produce ~~said~~ a linear controls signal for

said switching ~~functions~~operation, ~~means~~ a set of threshold circuits to generate a set of threshold values, one for each of said ~~amplifier~~ capacitor switching stages, and ~~means~~ a circuit to provide ~~a~~ said tuning voltage, dedicated for the voltage controlled capacitance change, for all of said ~~amplifier~~ capacitor switching stages;

~~Continually~~ switching on or off one of said ~~continuous~~ switching devices in order to ~~switch~~ connect one of said small capacitors in parallel to the ~~already switched on~~ other capacitors, that are already connected in parallel, connecting in parallel one capacitor after the other;

~~linearly~~ controlling the switching ~~function~~ operation in a steady ramp-up/ramp-down manner for each of said ~~continuous~~ switching devices, in order to partially switch on said small capacitors;

comparing the difference of the capacitance tuning voltage and the threshold voltage of each capacitor switching stage to produce the linear control signal for said ~~continually~~ steady ramp-up/ramp-down switching operation;

generating a set of threshold values, one for each of said ~~amplifier~~ capacitor switching stages; and

supplying ~~a~~ said tuning voltage, dedicated for the voltage controlled capacitance change, for all of said ~~amplifier~~ capacitor switching stages.

30. **(Currently amended)** The method of claim **29** wherein comparing the difference of the capacitance tuning voltage and the threshold voltage of each capacitor switching stage to produce the linear control signal for said continually switching operation is performed by ~~said~~ an operational amplifier.